

Task 1: Bowling!

A group of 4 friends is going bowling at **Bowling Bonanza**.
Bowling Bonanza charges:

- \$2.50 for each player to rent shoes plus
- \$80.00 for a group of 4 to bowl.

a) The graph below represents the relationship between cost, C , in dollars, and time, t , in hours, for 4 players to bowl.

i) Write the coordinates of point A.

ii) Explain what the coordinates of point A tell you about the cost of bowling.

iii) Explain how this graph would change if the cost for renting the shoes increased.

Cost for 4 Players vs. Time

Note: Refer to slope and y-intercept.

Mathematics Booklet 2, Academic Program

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c) Circle the equation that represents the graph in question a).

$C = 20t + 10$ $C = 20t^2 + 10$ $C = \frac{20}{t} + 10$

Give reasons for your answer.

d) This group of friends wants to spend \$80.
How many hours can they bowl at **Bowling Bonanza**?
Give reasons for your answer or show your work.

2

Grade 9 Assessment of Mathematics, 2002-2003

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Give reasons for your answer.

d) This group of friends wants to spend \$80.
How many hours can they bowl at **Bowling Bonanza**?
Give reasons for your answer or show your work.

3.5 hours

$y = 20(3.5) + 10$ $80 = 20t + 10$

$y = 80$

$80 - 10 = 20t$

$70 = 20t$

$20 \quad 20$

$3.5 = t$

2

Grade 9 Assessment of Mathematics, 2002-2003

a) William and his 3 friends are going bowling. He finds an advertisement in the newspaper for a new bowling alley, **Super Bowl**. William and his friends will play 6 games in 3 hours.

Determine whether William and his friends should go bowling at **Bowling Bonanza** or **Super Bowl**. Use the information given in the advertisement and in the hint box. Give reasons for your answer.

Super Bowl

- Free bowling shoes
- Each player pays \$3.00 per game
- Call **800-SUPERBOWL** and book your time today.

Note: Bowling Bonanza charges \$2.50 for each player to rent shoes and \$80.00 for a group of 4 to bowl.

Mathematics Booklet 2, Academic Program

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$C = (3.00t)4$

$t = \# \text{ of games}$

$C = 3(6)4$

$= 18(4)$

$C = 72.00$

It would be cheaper for William to go to **Bowling Bonanza** by \$8.00.

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Mathematics Booklet 2, Academic Program

1.8 Math Munch

Math Munch is a new snack made of pretzels and cheese bits.

- The cheese bits are spherical.
- The pretzels are cylindrical.

a) Calculate the surface area of one spherical cheese bit with a radius of 0.8 cm. Show your work.

b) The manufacturer of Math Munch is considering changing the size of the pretzels. Each pretzel will have a volume of approximately 1.0 cm^3 .

i) Calculate the surface area of a cylindrical pretzel with a radius of 0.5 cm and a height of 8.0 cm. Show your work. Record your answer in the appropriate space in the table on the opposite page.

ii) Calculate the height of a cylinder with a radius of 0.5 cm and a volume of 1.0 cm^3 . Show your work. Record your answer in the appropriate space in the table on the opposite page.

14 Grade 9 Assessment of Mathematics

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14 Grade 9 Assessment of Mathematics

Record your answers to questions i) and ii) in the table below:

d
0.4
0.6
0.8
1.2
1.6

Radius (cm)	Height (cm)	Surface area of cylinder (cm^2)	Volume of cylinder (cm^3)
0.2	8.0	i)	1.0
0.3	ii)	7.2	1.0
0.4	2.0	6.0	1.0
0.5	1.2	5.0	1.0
0.6	0.8	5.6	1.0
0.7	0.6	5.9	1.0
0.8	0.5	6.5	1.0

c) The manufacturer wants to cover the surface of each Math Munch pretzel with chocolate, while keeping her costs to a minimum. State the dimensions you would recommend for the cylindrical pretzel. Give reasons for your answer.

In an optimal cylinder the diameter is the same as the height
(0.5, 1.2) minimum SA

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